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07/346,165 05/02/89 FERRARA N 479581

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186

07/02/90

☒ This application has been examined ☐ Responsive to communication filed on _____ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☒ Notice of References Cited by Examiner, PTO-892.
2. ☐ Notice re Patent Drawing, PTO-948.
3. ☐ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, Form PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ _____

Part II SUMMARY OF ACTION

1. ☒ Claims 1-5, 12-25, 33-36, 38-40 are pending in the application.

   Of the above, claims _____ are withdrawn from consideration.

2. ☐ Claims _____ have been cancelled.

3. ☐ Claims _____ are allowed.

4. ☒ Claims 1-5, 12-25, 33-36, 38-40 are rejected.

5. ☐ Claims _____ are objected to.

6. ☐ Claims _____ are subject to restriction or election requirement.

7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable. ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).

11. ☐ The proposed drawing correction, filed on _____, has been ☐ approved. ☐ disapproved (see explanation).

12. ☐ Acknowledgment is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.

13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

EXAMINER'S ACTION

Applicant's election with traverse of group I in Paper No. 9 is acknowledged. The traversal is on the grounds that the inventions are part of the same inventive concept and that no undue search is required. This is not found persuasive because the attorney does not give any reasoning behind these statements.

The requirement is still deemed proper and is therefore made FINAL.

The Abstract of the Disclosure is objected to because it is two paragraphs in length. It must only be one paragraph. Correction is required. See M.P.E.P. 608.01(b).

Claims 1-5, 12-25, 33-36, and 38-40 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5, and 13-16 of copending application serial no. 07/328181. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant applicant merely further limits the claims of the earlier application, however the inventions are inherently the same.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The obviousness-type double patenting rejection is a judicially established doctrine based upon public policy and is primarily intended to prevent prolongation of the patent term by

prohibiting claims in a second patent not patentably distinct from claims in a first patent. In re Vogel, 164 USPQ 619 (CCPA 1970). A timely filed terminal disclaimer in compliance with 37 C.F.R. 1.321(b) would overcome an actual or provisional rejection on this ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 C.F.R. 1.78(d).

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.

Claims 1-5, 12-25, 33-36, and 38-40 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-5, 12-25, 33-36, and 38-40 of copending application Serial No. 346046. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Claims 1-3, 16, 19-25, 36, and 40 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The growth factor, as claimed has the same characteristics and utility as the growth factor found naturally and therefore does not constitute patentable subject matter. Applicant claims a growth factor "in isolated form", however it is not claimed what the factor is isolated from, or to

what degree of purity. In the absence of the hand of man, the naturally occurring growth factor is considered non-statutory subject matter. Diamond v. Chakrabarty, 206 USPQ 193 (1980). Mere purity of a naturally occurring product does not necessarily impart patentability. Ex parte Siddiqui, 156 USPQ 426 (1966). However, when purity results in a new utility, patentability is considered. Merck Co. v. CHase Chemical Co., 273F. SUpp. 68 (1967). See also American Wood v. Fiber Disintegrating Co., 90 U.S. 566 (1974); American Fruit Growers v. Brogdex Co., 283 U.S. 1 (1931); Funk Brothers Seed C. v. Kalo Innoculant Co., 33 U.S. 127 (1948). Filing of evidence of a new utility imparted by the increased purity of the claimed invention and amendment of the claims to recite the essential purity of the claimed growth factor is suggested to obviate this rejection. It is suggested that these claims be amended to recite the metes and bounds of the claimed protein sequence and the essential purity apart from its naturally occurring admixtures.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-5, 12-25, 33-36, and 38-40 are rejected under 35 U.S.C.

101 as lacking utility, or under 35 U.S.C. 112, first paragraph as failing to enable any person skilled in the art to which it pertains to practice the claimed methods and therefore obtain the claimed growth factor. See MPEP 608.01(p). This rejection is being made in light of the letter sent by Dr. Gospodarowicz (in paper number 6), one of the applicants, questioning the purification procedure used to obtain the growth factor. Dr. Gospodarowicz states that the purification procedure claimed is almost identical to the procedure used to isolate another similar protein, follistatin. Therefore, It is unclear that the claimed protein is actually a novel protein or that the method of purification is a novel process, and that either the protein or the process possess utility under 35 U.S.C. 101 or are properly enabled by the specification under 35 U.S.C. 112. Clarification of the nature of the process and the protein product is required to overcome this rejection, including a showing of the differences between the claimed process and the process used to purify follistatin, and reasoning for why follistatin is not present is the purified extract.

Claims 19-20, and 40 are rejected under 35 U.S.C. 112, first paragraph, as the disclosure is enabling only for claims limited to the growth factor purified from natural sources. Claims 19-20 recites the growth factor "...produced by a recombinant deoxyribonucleic acid (DNA) methods." Applicants do not describe anywhere in the specification recombinant techniques.

Furthermore, applicants state that the short protein sequences that have been determined will be used to try to find the gene (DNA sequence). Therefore, without the gene sequence available, it would require undue experimentation for one of ordinary skill to produce the protein by recombinant methods.

Claims 1, 2, 15, 21-25, 35, 36, and 40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 21 is identical to claim 1, claims 22-25 are collectively identical to claim 2, and claim 36 is identical to claim 15, and are therefore confusing. Claim 35 is dependent on itself, and therefore confusing. Claim 40 is confusing as to the term "certain" in referring to the amino acids in parenthesis. Does this mean the amino acids not in parenthesis are uncertain? This is unclear.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103 which forms

the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Claims 1-5, 12-25, 33-36, 38-40 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103 as obvious over Burgess et al. Burgess et al. teaches an endothelial cell growth factor and a method of purification. Multiple forms of the growth factor are disclosed, including a 20 kD species (see abstract). Given the source and purification techniques used by Burgess et al., it is possible that the subunits claimed by applicant are identical to the 20 kD species disclosed by Burgess et al. Burgess et al. uses ammonium sulfate precipitation, followed by heparin sepharose chromatography, followed by reverse phase HPLC (see results section). Burgess et al. does not disclose the 43 kD dimer species, or the amino acid sequence, however in view of their similar source, identical biological activity, and similar molecular weight of the reduced subunits, the growth factor disclosed by Burgess et al. and the

growth factor claimed by applicant appear to be the same species. Since the species appear to be identical, the distinguishing features, such as sequence or secondary structure, would be inherently present in the species disclosed by Burgess et al. even though these features are not specifically taught.

Claims 1-5, 14-16, 18-25, 34-36, 40 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103 as obvious over Winkles et al. Winkles et al. teaches an endothelial cell growth factor derived from vascular smooth muscle that binds heparin (see abstract). Winkles et al. does not disclose the growth factor derived from folliculo stellate cells, however in view of their identical biological activity and applicant's own admission on page 43 that it is unknown if the factor is expressed in other tissue, the growth factor disclosed by Winkles et al. and the growth factor claimed by applicant appear to be the same species. Since the species appear to be identical, the distinguishing features, such as source tissue, would be inherently present in the species disclosed by Winkles et al. even though these features are not specifically taught.

These rejections are being made under 35 USC 102 and 103 because it is impossible for the Examiner in charge of this application to physically compare the claimed protein and method of purification to the protein and method of the prior art. Applicant bears the burden of providing evidence which

distinguishes the claimed protein and purification method from that disclosed by Burgess et al.. A preferred means of providing this evidence is for applicant to submit a declaration evidencing a side by side comparison of the protein of the prior art and the claimed protein, which demonstrates material differences and shows the proteins to be distinct and unobvious in view of each other.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shelly Guest whose telephone number is (703) 557-9185. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 557-0664.

M. Moskowitz

MARGARET MOSKOWITZ
SUPERVISORY
PATENT EXAMINER
ART UNIT 186

sjg
June 28, 1990